Weekly Activities Summary
Amendment 2 - Full Scale Field Demonstration
Interim Combined Acid Drainage Treatability Study Work Plan
Leviathan Mine Site
Alpine County, California

Week: July 29 – August 4, 2017

The following text describes field activities conducted during July 29 through August 4, 2017, to implement Amendment No. 2 to the Interim Combined Acid Drainage Treatability Investigation Work Plan, which Atlantic Richfield submitted to U.S. EPA on March 31, 2017.

INTERIM COMBINED TREATMENT OPERATIONS

OPERATIONAL SUMMARY

- ICT Demonstration operations continued during the period of July 29, 2017, through August 4, 2017. Following completion of the minor engineering modifications described in the July 22 through July 28, 2017 Weekly Activities Summary, Atlantic Richfield resumed conveyance of Upper Pond water from Pond 2S into Pond 4 on July 28, 2017.
    - The HDS Treatment Plant resumed treatment and discharge of blended water on July 29, 2017, at approximately 10:30 AM, at 120 gpm.
    - Operations continued between 120 and 100 gpm until August 2, 2017, at approximately 9:38 AM, when the treatment rate was increased to 143 gpm.
    - On August 3, 2017, at approximately 4:22 PM, the treatment rate was decreased to 75 gpm to address reduced sludge density in the clarifier. Because of the reduced density, sludge was not settling at the optimal rate, requiring wasting of larger volumes of low density sludge during the day. This is similar to observations made during the pilot test at a similar influent acidity range. Atlantic Richfield has been working to increase sludge quality through pH adjustments and influent acidity adjustments. On August 4, 2017, the HDS Treatment Plant pH setpoint was increased to 8.5 s.u.
    - The blended water influent flow rate was maintained between 75 gpm and 100 gpm through August 4, 2017 to best manage the sludge that was generating in the clarifier.
    - Observations confirm that the minor engineering modifications completed on July 28, 2017 are preventing crusting/lime shelf buildup in the lime sludge mix tank and scaling of the flocculent delivery system.
- Capture of the CUD and DS flows and conveyance to Pond 4 occurred uninterrupted during the reporting period.

- The HDS Treatment Plant will be operated at approximately 100 gpm without conveyance of Upper Pond water from Pond 2S into Pond 4 for the next several days to reduce the water level in Pond 4 to a target level of approximately five feet per the USGS gauge. Once that water level is achieved, conveyance of Upper Pond water will resume to increase the overall acidity in Pond 4. Atlantic Richfield plans to increase the acidity in Pond 4 to ≥2,900 mg/L, and then resume HDS Treatment Plant operations at a treatment flow rate of 143 gpm. It is anticipated that operations at the target acidity and 143 gpm will resume on August 14, 2017. Atlantic Richfield will perform daily effluent sampling on each of the first seven days after the treatment flow rate returns to 143 gpm.

HDS TREATMENT PLAN OPERATIONS SUMMARY

- HDS Treatment Plant operations experienced the following short-term interruptions between July 29 and August 4, 2017:
    - Approximately 9.05 hours on July 29, 2017, to complete the HDS Treatment Plant equipment modifications. During this time, miscellaneous maintenance and cleaning were also performed.
    - Approximately 2.33 hours on August 1, 2017, to inspect the effluent tank discharge valve, backflush the clarifier, and perform maintenance on treated water utility pumps.
    - Approximately 3.05 hours on August 4, 2017, due to a high turbidity plant trip
- The HDS Treatment Plant was placed in recycle mode returning effluent to Pond 4 following short-term interruptions between July 29 and August 4, 2017:
    - Approximately 1.45 hours on July 29, 2017, after the completion of the HDS Treatment Plant equipment modifications.
    - Approximately 9.08 hours on August 1, 2017 and 7.25 hours on August 2, 2017, after inspecting the effluent tank discharge valve, backflushing the clarifier, and performing maintenance on the treated water utility pumps. The HDS Treatment Plant remained in recycle mode overnight due to the high effluent turbidity.
- The remainder of the time, the HDS Treatment Plant was discharging to Leviathan Creek.
- Capture and conveyance of the CUD and DS were maintained uninterrupted throughout this period.

SAMPLING SUMMARY

- HDS Treatment Plant ICT sampling was performed on August 2, August 3, and August 4, 2017.
- Sampling results received to date are provided in Table 1. A summary of the HDS Treatment Plant effluent field monitoring is presented in Table 2. Flow volumes recorded for the Channel Underdrain, Delta Seep, Leviathan Creek diversion, Upper Pond water transfer, and treated water discharged from the HDS Treatment Plant

are included in Table 3. An Interim Combined Treatment operational summary is presented in Table 4.

- Atlantic Richfield will perform daily sampling for a period of at least one week upon resuming the field demonstration at the target criteria specified in the work plan.

SLUDGE DISPOSAL SUMMARY

- One sludge bin totaling 9,417 kilograms, approximately 14 cubic yards, was disposed of off-site at US Ecology in Beatty, NV on August 3, 2017.
- Sludge wasting volumes during operation are also included in Table 4.

TABLE 1
HDS TREATMENT PLANT - PRELIMINARY INTERIM COMBINED TREATMENT SAMPLE RESULTS
Leviathan Mine Site
Alpine County, California
Draft - Provisional Data

Parameter	Basis	July 07, 2017 HDSICT-1 HDS Influent mg/L	July 07, 2017 HDSICT-2 HDS Effluent mg/L	July 10, 2017 HDSICT-1 HDS Influent mg/L	July 10, 2017 HDSICT-2 HDS Effluent mg/L	July 10, 2017 UPCS-2 Pond 2S mg/L	July 11, 2017 HDSICT-1 HDS Influent mg/L	July 11, 2017 HDSICT-2 HDS Effluent mg/L	July 11, 2017 UPCS-2 Pond 2S mg/L	July 12, 2017 HDSICT-1 HDS Influent mg/L	July 12, 2017 HDSICT-2 HDS Effluent mg/L	July 12, 2017 UPCS-2 Pond 2S mg/L	July 13, 2017 HDSICT-1 HDS Influent mg/L
pH (s.u.)[1]	Field	2.76	7.64	2.68	7.91	2.42	NA	NA	NA	NA	NA	NA	2.71
Aluminum	Dissolved	250	<1.0	160	0.57	490	NA	NA	NA	NA	NA	NA	250
Arsenic	Dissolved	2.6	0.0017	0.68	0.0019	7.6	NA	NA	NA	NA	NA	NA	2.4
Cadmium	Dissolved	0.037	0.00028 J	0.022	<0.001	0.089	NA	NA	NA	NA	NA	NA	0.035
Calcium	Dissolved	300	1000	310	1000	190	NA	NA	NA	NA	NA	NA	310
Chloride	Total	6.7	2.6	2.9	1.9	4.9	NA	NA	NA	NA	NA	NA	12
Chromium	Dissolved	0.38	<0.002	0.3	0.00091 J	1.4	NA	NA	NA	NA	NA	NA	0.53
Copper	Dissolved	1	0.0014 J	0.81	0.0038	3.2	NA	NA	NA	NA	NA	NA	1.1
Hardness	Dissolved	1000	2800	1000	2800	740	NA	NA	NA	NA	NA	NA	1100
Iron	Dissolved	610	<1.0	440	<0.50	960	NA	NA	NA	NA	NA	NA	630
Lead	Dissolved	0.0021	<0.001	<0.005	<0.001	<0.02	NA	NA	NA	NA	NA	NA	<0.005
Magnesium	Dissolved	80	110	78	77	61	NA	NA	NA	NA	NA	NA	85
Nickel	Dissolved	2.5	**0.15**	3.1	**0.1**	5.8	NA	NA	NA	NA	NA	NA	3.2
Selenium	Total	0.0089	0.002	0.0084	0.0019 J	0.012	NA	NA	NA	NA	NA	NA	0.0044 J
Sulfate	Total	4100	3000	3000	2700	5900	NA	NA	NA	NA	NA	NA	3700
Zinc	Dissolved	0.73	0.0064 J	0.71	0.0028 J	1.4	NA	NA	NA	NA	NA	NA	0.82
Acidity	Total	2800	<2.0	2200	<2.0	5300	NA	NA	NA	NA	NA	NA	2800
Alkalinity (Bicarbonate)	Total	<4.8	37	<4.8	13	<4.8	NA	NA	NA	NA	NA	NA	<4.8
Alkalinity (Carbonate)	Total	<2.4	<2.4	<2.4	<2.4	<2.4	NA	NA	NA	NA	NA	NA	<2.4
Alkalinity (Hydroxide)	Total	<1.4	<1.4	<1.4	<1.4	<1.4	NA	NA	NA	NA	NA	NA	<1.4
Alkalinity (Total)	Total	<4.0	30	<4.0	11	<4.0	NA	NA	NA	NA	NA	NA	<4.0
Total Dissolved Solids	Total	5800	4400	4700	4500	9100	NA	NA	NA	NA	NA	NA	5800
Total Suspended Solids	Total	44	36	110	16	28	NA	NA	NA	NA	NA	NA	52

Notes:
1. pH values are field measurements and are reported in standard units.
2. Discharge criteria and basis for maximum and average values are listed in the Request for Approval of Modification to the Removal Action at the Leviathan Mine Memorandum (U.S. EPA, 2008).
3. pH setpoint in the Reactor Tank was increased from 8.0 to 8.3 on July 13, 2017. The increase occurred prior to sample collection.

Abbreviations:
< - Constituents that were not detected are listed as "<" and the reporting limit is shown.
J - Results noted with "J" are an estimated value or were less than the reporting limit but greater than or equal to the method detection limit.
mg/L - milligrams per liter
NP - Not Promulgated

TABLE 1
HDS TREATMENT PLANT - PRELIMINARY INTERIM COMBINED TREATMENT SAMPLE RESULTS
Leviathan Mine Site
Alpine County, California
Draft - Provisional Data

Parameter	Basis	July 13, 2017 HDSICT-2 HDS Effluent mg/L	July 13, 2017 UPCS-2 Pond 2S mg/L	July 14, 2017 HDSICT-1 HDS Influent mg/L	July 14, 2017 HDSICT-2 HDS Effluent mg/L	July 14, 2017 UPCS-2 Pond 2S mg/L	July 19, 2017 HDSICT-1 HDS Influent mg/L	July 19, 2017 HDSICT-2 HDS Effluent mg/L	July 20, 2017 HDSICT-1 HDS Influent mg/L	July 20, 2017 HDSICT-2 HDS Effluent mg/L	July 26, 2017 HDSICT-1 HDS Influent mg/L	July 26, 2017 HDSICT-2 HDS Effluent mg/L	August 02, 2017 HDSICT-1 HDS Influent mg/L	August 02, 2017 HDSICT-2 HDS Effluent mg/L
pH (s.u.)[1]	Field	8.18	2.45	2.62	8.19	2.41	NA	NA	NA	NA	NA	NA	2.68	8.37
Aluminum	Dissolved	0.68	540	310	0.48 J	690	NA	NA	NA	NA	NA	NA	210	1.3
Arsenic	Dissolved	0.0016	8.6	2.5	0.0026	9.2	NA	NA	NA	NA	NA	NA	2.6	0.0024
Cadmium	Dissolved	<0.001	0.091	0.037	<0.001	0.087	NA	NA	NA	NA	NA	NA	0.032	<0.001
Calcium	Dissolved	1500	220	360	1400	260	NA	NA	NA	NA	NA	NA	370	1300
Chloride	Total	<10	12	12	<10	12	NA	NA	NA	NA	NA	NA	10	3.3 J
Chromium	Dissolved	<0.002	1.4	0.41	<0.002	1.5	NA	NA	NA	NA	NA	NA	0.43	<0.002
Copper	Dissolved	0.0044	2.9	0.88	0.001 J	3.3	NA	NA	NA	NA	NA	NA	0.81	0.0041
Hardness	Dissolved	3500	810	1400	3900	930	NA	NA	NA	NA	NA	NA	1300	3400
Iron	Dissolved	<0.50	1200	760	<0.50	1400	NA	NA	NA	NA	NA	NA	480	<0.50
Lead	Dissolved	<0.001	<0.01	0.0018	<0.001	0.0042	NA	NA	NA	NA	NA	NA	0.001	<0.001
Magnesium	Dissolved	77	76	100	68	99	NA	NA	NA	NA	NA	NA	77	65
Nickel	Dissolved	0.05	5.4	2.5	0.049	6.4	NA	NA	NA	NA	NA	NA	2.7	0.031
Selenium	Total	0.0021	0.0067 J	<0.02	0.0028	0.0057 J	NA	NA	NA	NA	NA	NA	0.014	0.0028
Sulfate	Total	2800	6200	4200	3600	6800	NA	NA	NA	NA	NA	NA	3700	3300
Zinc	Dissolved	0.003 J	1.3	0.74	<0.02	1.1	NA	NA	NA	NA	NA	NA	0.68	0.004 J
Acidity	Total	<2.0	5700	3100	<2.0	5800	NA	NA	NA	NA	NA	NA	2500	<2.0
Alkalinity (Bicarbonate)	Total	10	<4.8	<4.8	9.5	<4.8	NA	NA	NA	NA	NA	NA	<4.8	14
Alkalinity (Carbonate)	Total	<2.4	<2.4	<2.4	<2.4	<2.4	NA	NA	NA	NA	NA	NA	<2.4	<2.4
Alkalinity (Hydroxide)	Total	<1.4	<1.4	<1.4	<1.4	<1.4	NA	NA	NA	NA	NA	NA	<1.4	<1.4
Alkalinity (Total)	Total	8.5	<4.0	<4.0	7.8	<4.0	NA	NA	NA	NA	NA	NA	<4.0	12
Total Dissolved Solids	Total	5200	9500	6000	4200	9300	NA	NA	NA	NA	NA	NA	5700	5000
Total Suspended Solids	Total	6.3	32	43	240	10	NA	NA	NA	NA	NA	NA	35	18

TABLE 1
HDS TREATMENT PLANT - PRELIMINARY INTERIM COMBINED TREATMENT SAMPLE RESULTS
Leviathan Mine Site
Alpine County, California
Draft - Provisional Data

Parameter	Basis	August 03, 2017 HDSICT-1 HDS Influent mg/L	August 03, 2017 HDSICT-2 HDS Effluent mg/L	August 03, 2017 UPCS-2 Pond 2S mg/L	August 04, 2017 HDSICT-1 HDS Influent mg/L	August 04, 2017 HDSICT-2 HDS Effluent mg/L	August 04, 2017 UPCS-2 Pond 2S mg/L	August 05, 2017 HDSICT-1 HDS Influent mg/L	August 05, 2017 HDSICT-2 HDS Effluent mg/L	August 05, 2017 UPCS-2 Pond 2S mg/L	August 07, 2017 HDSICT-1 HDS Influent mg/L	August 07, 2017 HDSICT-2 HDS Effluent mg/L	Maximum Discharge Criteria[2] mg/L	Average Discharge Criteria[2] mg/L
pH (s.u.)[1]	Field	2.42	8.33	2.05	2.55	8.48	2.3	NA	NA	NA	NA	NA	6.0 - 9.0	-
Aluminum	Dissolved	190	1.2	590	200	1.9	550	NA	NA	NA	NA	NA	4	2.0
Arsenic	Dissolved	2.5	0.0019	12	2.7	0.0031	12	NA	NA	NA	NA	NA	0.340	0.15
Cadmium	Dissolved	0.03	<0.001	0.11	0.032	<0.001	0.11	NA	NA	NA	NA	NA	0.0090	0.004
Calcium	Dissolved	370	1200	240	370	1200	220	NA	NA	NA	NA	NA	-	-
Chloride	Total	5.1	<100	13	4.4	2.6	15	NA	NA	NA	NA	NA	-	-
Chromium	Dissolved	0.43	<0.002	1.6	0.44	<0.002	1.6	NA	NA	NA	NA	NA	0.970	0.31
Copper	Dissolved	0.82	0.0029	3.1	0.87	0.003	3.2	NA	NA	NA	NA	NA	0.026	0.016
Hardness	Dissolved	1200	3000	890	1200	3200	830	NA	NA	NA	NA	NA	-	-
Iron	Dissolved	460	<0.50	1200	520	<0.50	1200	NA	NA	NA	NA	NA	2	1.0
Lead	Dissolved	0.0009 J	<0.001	<0.005	0.00093 J	<0.001	0.0054	NA	NA	NA	NA	NA	0.136	0.005
Magnesium	Dissolved	71	57	82	77	53	78	NA	NA	NA	NA	NA	-	-
Nickel	Dissolved	2.6	0.022	6.7	2.8	0.015	6.9	NA	NA	NA	NA	NA	0.84	0.094
Selenium	Total	0.0036	0.0029	0.006	0.0037	0.0029	0.0066	NA	NA	NA	NA	NA	NP	0.005
Sulfate	Total	3700	3100	7000	3400	2500	9600	NA	NA	NA	NA	NA	-	-
Zinc	Dissolved	0.63	<0.02	1.4	0.66	<0.02	1.5	NA	NA	NA	NA	NA	0.21	0.21
Acidity	Total	2400	<2.0	6100	2600	<2.0	6800	NA	NA	NA	NA	NA	-	-
Alkalinity (Bicarbonate)	Total	<4.8	14	<4.8	<4.8	17	<4.8	NA	NA	NA	NA	NA	-	-
Alkalinity (Carbonate)	Total	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	NA	NA	NA	NA	NA	-	-
Alkalinity (Hydroxide)	Total	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	NA	NA	NA	NA	NA	-	-
Alkalinity (Total)	Total	<4.0	12	<4.0	<4.0	14	<4.0	NA	NA	NA	NA	NA	-	-
Total Dissolved Solids	Total	5400	4900	10000	5700	4500	11000	NA	NA	NA	NA	NA	-	-
Total Suspended Solids	Total	32	17	28	32	33	32	NA	NA	NA	NA	NA	-	-

TABLE 2
HDS TREATMENT PLANT - EFFLUENT FIELD MONITORING
Leviathan Mine Site
Alpine County, California
Draft - Provisional Data

Date	Time	HDS Treatment Plant Effluent Field Monitoring			
		Flow[1] (gpm)	pH[2] (s.u.)	Dissolved Iron[3] (mg/L)	Turbidity (NTU)[4]
07/07/17	9:25 AM	40.0	7.21	0.02	4.7
07/08/17	7:35 AM	70.0	7.50	0.44	3.8
07/09/17	7:50 AM	70.0	7.60	0.07	4.0
07/10/17	8:00 AM	70.0	7.31	0.17	15.3
07/10/17	4:30 PM	143.0	7.62	0.09	1.7
07/11/17	6:20 AM	143.0	8.05	0.58	3.0
07/11/17	6:10 PM	143.0	8.12	0.65	1.7
07/12/17	6:15 AM	143.0	7.99	0.06	2.3
07/12/17	6:00 PM	143.0	8.11	0.09	2.8
07/13/17	6:10 AM	143.0	7.96	0.11	2.6
07/13/17	6:10 AM	143.0	7.95	0.11	2.6
07/13/17	6:00 PM	143.0	8.01	0.04	2.5
07/14/17	6:50 AM	143.0	7.71	0.04	4.9
07/14/17	7:00 PM	143.0	8.35	0.57	2.1
07/15/17	7:00 PM	123.0	8.38	0.03	1.4
07/16/17	6:00 PM	100.0	8.01	< 0.03	3.7
07/17/17	6:20 AM	100.0	8.28	< 0.03	3.3
07/17/17	7:00 PM	100.0	8.18	< 0.03	2.5
07/18/17	6:15 AM	100.0	8.50	< 0.03	10.1
07/18/17	4:30 PM	100.0	7.91	0.14	2.57
07/19/17	5:15 PM	100.0	7.81	0.06	2.26
07/20/17	6:45 AM	100.0	8.06	< 0.03	3.44
07/20/17	3:50 PM	100.0	7.73	< 0.03	2.73
07/21/17	7:45 AM	100.0	8.16	0.17	4.8
07/21/17	3:00 PM	100.0	8.05	< 0.03	4.07
07/22/17	7:30 AM	100.0	8.09	0.05	3.64
07/23/17	7:00 AM	100.0	8.36	0.04	3.11
07/24/17	7:50 AM	100.0	NA	0.03	NA

TABLE 2
HDS TREATMENT PLANT - EFFLUENT FIELD MONITORING
Leviathan Mine Site
Alpine County, California
Draft - Provisional Data

Date	Time	HDS Treatment Plant Effluent Field Monitoring			
		Flow[1] (gpm)	pH[2] (s.u.)	Dissolved Iron[3] (mg/L)	Turbidity (NTU)[4]
07/25/17	8:15 AM	100.0	8.53	0.03	4.61
07/26/17	8:10 AM	100.0	8.54	0.06	7.69
07/27/17	--	--	--	--	--
07/28/17	--	--	--	--	--
07/29/17	2:00 PM	120.0	8.39	0.09	14.9
07/30/17	8:45 AM	120.0	8.38	0.09	6.33
07/31/17	8:30 AM	100.0	8.33	< 0.03	13.8
08/01/17	8:25 AM	100.0	8.27	< 0.03	2.33
08/01/17	5:45 PM	100.0	7.99	0.19	38.4
08/02/17	7:30 AM	100.0	8.17	< 0.03	1.53
08/02/17	1:35 PM	143.0	8.3	0.06	1.34
08/03/17	7:20 AM	143.0	8.27	< 0.03	1.38
08/03/17	12:30 PM	143.0	8.33	0.03	0.58
08/03/17	6:10 PM	75.0	8.4	NA	NA
08/04/17	7:45 AM	75.0	8.42	0.04	2.61
08/04/17	4:10 PM	100.0	8.49	< 0.03	NA

Notes:
[1] HDS Treatment Plant influent flow rate measurements are calculated from flow totalizer volume measurements.
[2] Effluent pH values are field measurements and are reported in standard units. The HDS Treatment Plant pH set point was 8.0 from July 7 through July 13, 2017. It was increased to 8.3 from July 13 through July 24, 2017. It was increased to 8.6 from July 24 through July 27, 2017. It returned to 8.3 from July 27 through August 4, 2017. It was increased to 8.5 on August 4, 2017, and remains there currently.
[3] Dissolved Iron values are field measurements and are reported in mg/L.
[4] Turbidity values are field measurements and are reported in NTU.

Abbreviations:
gpm - gallons per minute
mg/L - milligrams per liter
NA - not available
s.u. - standard unit
-- - not applicable, plant not in operation
< - less than

TABLE 3
INTERIM COMBINED TREATMENT VOLUMES
Leviathan Mine Site
Alpine County, California
Draft - Provisional Data

Date	CUD Collection Volume	DS Collection Volume	Leviathan Creek Diversion Volume	Upper Pond Transfer Volume	Treated Water Discharge from HDS Treatment Plant Recorded Flow[1,2]	
	(gallons)	(gallons)	(gallons)	(gallons)	(gpm)	(gallons)
7/5/2017	68,619	22,957	0	115,540	0	0
7/6/2017	70,136	23,188	0	100,204	0	0
7/7/2017[3]	70,235	22,763	1,619	0	39.0	56,121
7/8/2017	70,331	22,738	0	0	70.0	100,774
7/9/2017	70,411	22,299	0	0	70.0	100,738
7/10/2017	70,542	22,242	0	35,000	109.6	157,807
7/11/2017	70,617	22,112	2,959	39,000	142.2	204,716
7/12/2017	70,413	21,686	0	57,750	142.7	205,542
7/13/2017	70,598	22,402	0	100,800	113.6	163,548
7/14/2017	70,698	22,017	6,591	84,480	84.2	121,242
7/15/2017	70,762	29,203	15,663	30,600	100.0	143,928
7/16/2017	70,790	30,773	6,199	21,000	88.7	127,786
7/17/2017	70,872	21,409	0	0	99.8	143,766
7/18/2017	70,911	20,729	0	0	99.7	143,523
7/19/2017	71,055	21,852	0	0	67.4	97,019
7/20/2017	71,083	20,656	0	0	99.4	143,175
7/21/2017	71,117	20,654	0	0	100.0	143,959
7/22/2017	71,110	20,572	0	0	100.0	143,991
7/23/2017	71,204	20,532	0	0	68.2	98,253
7/24/2017	71,273	20,317	0	0	46.0	66,283
7/25/2017	71,346	20,426	0	0	100.0	143,955
7/26/2017	71,353	20,272	0	0	46.7	67,190

TABLE 3
INTERIM COMBINED TREATMENT VOLUMES
Leviathan Mine Site
Alpine County, California
Draft - Provisional Data

Date	CUD Collection Volume	DS Collection Volume	Leviathan Creek Diversion Volume	Upper Pond Transfer Volume	Treated Water Discharge from HDS Treatment Plant Recorded Flow[1,2]	
	(gallons)	(gallons)	(gallons)	(gallons)	(gpm)	(gallons)
7/27/2017	71,356	19,904	622	0	0.0	0
7/28/2017	71,415	19,787	175	0	0.0	0
7/29/2017	71,471	19,939	0	50,026	67.2	96,814
7/30/2017	71,439	19,676	0	14,515	107.3	154,467
7/31/2017	71,417	19,880	0	75,355	100.0	144,000
8/1/2017	71,469	19,638	15,828	88,502	53.4	76,866
8/2/2017	71,535	19,342	24,827	59,674	95.4	137,334
8/3/2017	71,604	19,801	16,344	43,862	121.2	174,530
8/4/2017	71,753	19,073	0	19,786	71.7	103,296
Average Flow Rate or Total Discharged	2,198,935	668,840	90,827	936,094	82.9	3,460,623

Notes:

1. Treated Water Discharge recorded flows are calculated from flow totalizer volume measurements.
2. The average flow rate is reported. Water discharge does not always occur 24 hours per day. The operational flow rate may also vary during the day.
3. Discharge of treated combined water from the HDS Treatment Plant started on July 7, 2017, at approximately 9:53 AM.

Abbreviations:

CUD - Channel Underdrain
DS - Delta Seep
HDS - High Density Sludge
gpm - gallons per minute

TABLE 4
INTERIM COMBINED TREATMENT OPERATIONAL SUMMARY
Leviathan Mine Site
Alpine County, California

Date	Influent Flow Setpoint (gpm)	Hours of Operation[a]	Sludge Recycle Setpoint (gpm)	Flocculant Dosage Setpoint (ppm)	Reactor Tank pH[b] (s.u.)	Effluent Tank pH[b] (s.u.)	Effluent Turbidity[c] (NTUs)	Lime Utilization[d] (g/L)	Sludge Waste (gallons)	Sludge Disposed (kg)
7/22/2017	100	24.0	25	2.4	8.30	8.24	2.68	1.55	800	0
7/23/2017	100	16.3	25	2.4	8.12	8.05	3.59	1.51	1200	0
7/24/2017	100	12.5	25	2.4	8.16	8.00	6.75	1.65	600	20575
7/25/2017	100	24.0	25	2.4	8.60	8.61	5.34	1.26	1200	0
7/26/2017	100	11.1	25	2.4	8.60	8.61	7.50	1.20	1200	13227
7/27/2017	--	--	--	--	--	--	--	--	--	--
7/28/2017	--	--	--	--	--	--	--	--	--	--
7/29/2017	120	13.5	25	2.4	8.56	8.25	13.54	1.60	600	0
7/30/2017	120	8.75	25	2.4	8.31	8.29	4.01	1.62	4800	0
7/30/2017	100	15.25								
7/31/2017	100	24.0	25	2.4	8.29	8.26	5.67	1.68	3600	0
8/1/2017	100	12.6	50	2.4	8.29	8.33	11.12	2.22	5600	0
8/2/2017	100	1.05	50	2.4	8.30	8.30	2.83	2.05	8600	0
8/2/2017	123	1.17	33							
8/2/2017	143	14.3	33							
8/3/2017	143	16.4	33	2.4	8.30	8.32	6.19	1.84	9620	9417
8/3/2017	75	7.6								
8/4/2017	75	15.2	33	2.4	8.49	8.49	12.98	2.29	8450	0
8/4/2017	100	5.8								

Notes:

[a] The hours of operation are when the HDS Treatment Plant is actively discharging to Leviathan Creek.

[b] The average of the in-line pH probe measurements is presented. The Reactor Tank pH set point was 8.3 from July 22 through July 24, 2017. It was increased to 8.6 from July 24 through July 27, 2017 because the HDS Treatment Plant was treating primarily Channel Underdrain and Delta Seep water. It returned to 8.3 from July 27 through August 4, 2017 becuase the HDS Treatment Plant began treating combined water again. It was increased to 8.5 on August 4, 2017, and remains there currently to gather data operating at a higher pH setpoint with combined water.

[c] The average of the in-line turbidity meter measurements is presented.

[d] The average of the in-line lime utilization rate based on the mass of lime dosed and the influent flow rate is presented.

Abbreviations:

-- = not measured or not applicable
gpm = gallon per minute
L = liter
s.u. = standard unit
g = gram
kg = kilogram
ppm = part per million